LISTING OF CLAIMS:

1. (Currently Amended) A wireless telephone system, comprising:

(a) a base unit (110) coupleable to one or more external telephone lines and having a base transceiver (111, 112);

(b) a plurality of wireless handsets (120₁ — 120ₙ) which may be active or inactive, each having a handset transceiver for establishing a time-division multiple access (TDMA) link, when said handset is active, over a shared RF channel with the base unit via the base transceiver, in which each active handset communicates during an time slice of a TDMA scheme that allocates time slices to active handsets, wherein a number of data samples having a sample size are transmitted during each time slice; and

(c) means (113) for allowing at least two handsets to alternatingly share a time slice, when one of said two handsets is to establish a new TDMA link and when establishing said new TDMA link would exceed the available channel capacity, by reducing the sample size and thereby increasing the number of data samples transmitted during said shared time slices wherein the TDMA scheme comprises an epoch having a plurality of transmit and receive data row pairs, one such row pair for each handset, each row comprising a field of data and being divided into a specified number of time slices, wherein each field is 2ms in length.

2. (Original) The system of claim 1, wherein the data samples are adaptive differential pulse code modulation (ADPCM) samples, each ADPCM sample having a number of bits.

3. (Original) The system of claim 1, wherein:

the plurality of handsets comprises exactly N wireless handsets;

the TDMA scheme comprises an epoch having N transmit data rows and N receive data rows;

each active handset receives or transmits 16 4-bit ADPCM samples during each time slice for said handset when no handsets share time slices; and

when at least two handsets share a time slice for one of said two handsets, each of said two handsets receives or transmits 32 2-bit ADPCM samples during each alternate shared time slice for each said handset.

4. (Original) The system of claim 1, wherein:

the TDMA scheme comprises an epoch having a plurality of transmit and receive data row pairs, one such row pair for each handset; and

each active handset receives data and transmits data via a data slice only once during each epoch, during the transmit and receive data row pair for each said active handset.

5. Cancelled.

6. (Original) The system of claim 1, wherein the TDMA scheme is a variable TDMA scheme in which the number of handsets is greater than the maximum number of links that may be established over the channel.

7. (Original) The system of claim 1, wherein the TDMA scheme is a fixed TDMA scheme in which the number of handsets is equal to the maximum number of links that may be established over the channel.

8. (Original) The system of claim 1, wherein:

the plurality of handsets comprises 8 handsets;

up to 4 handsets may be active using without sharing time slices; and

up to 8 handsets may be active by sharing time slices..

9. (Original) The system of claim 1, wherein:

the TDMA scheme comprises an epoch having a plurality of transmit and
receive data row pairs, one such row pair for each handset;

each handset is battery-powered; and

each active handset turns on during the epoch only during its own time slice
and turns off otherwise.

10. (Original) In a wireless telephone system having a base unit and a plurality of wireless handsets, wherein the base unit is coupleable to one or more external telephone lines and has a base transceiver, each of the plurality of wireless handsets may be active or inactive, and each handset comprises a handset transceiver, a method comprising the steps of:

(a) establishing, with the handset transceiver for each active handset, a TDMA
link over a shared RF channel with the base unit via the base
transceiver, in which each active handset communicates during an
exclusive time slice of a TDMA scheme that allocates time slices to
active handsets, wherein a number of data samples having a sample
size are transmitted during each time slice; and

(b) allowing at least two handsets to alternatingly share a time slice, when one
of said two handsets is to establish a new TDMA link and when
establishing said new TDMA link would exceed the available channel
capacity, by reducing the sample size and thereby increasing the
number of data samples transmitted during said shared time slices
wherein the TDMA scheme comprises an epoch having a plurality of
transmit and receive data row pairs, one such row pair for each
handset, each row comprising a field of data and being divided into a
specified number of time slices, wherein each field is 2ms in length .

11. (Original) The method of claim 10, wherein the data samples are adaptive differential pulse code modulation (ADPCM) samples, each ADPCM sample having a number of bits.

12. The method of claim 10, wherein:

the plurality of handsets comprises exactly N wireless handsets;

the TDMA scheme comprises an epoch having N transmit data rows and N receive data rows;

each active handset receives or transmits 16 4-bit ADPCM samples during each time slice for said handset when no handsets share time slices; and

when at least two handsets share a time slice for one of said two handsets, each of said two handsets receives or transmits 32 2-bit ADPCM samples during each alternate shared time slice for each said handset.

13. (Original) The method of claim 10, wherein:

the TDMA scheme comprises an epoch having a plurality of transmit and receive data row pairs, one such row pair for each handset; and

each active handset receives data and transmits data via a data slice only once during each epoch, during the transmit and receive data row pair for each said active handset.

14. Cancelled

15. (Original) The method of claim 10, wherein the TDMA scheme is a variable TDMA scheme in which the number of handsets is greater than the maximum number of links that may be established over the channel.

16. (Original) The method of claim 10, wherein the TDMA scheme is a fixed TDMA scheme in which the number of handsets is equal to the maximum number of links that may be established over the channel.

17. (Original) The method of claim 10, wherein:

the plurality of handsets comprises 8 handsets;

up to 4 handsets may be active using without sharing time slices; and

up to 8 handsets may be active by sharing time slices..

18. (Original) The method of claim 10, wherein:

the TDMA scheme comprises an epoch having a plurality of transmit and
      receive data row pairs, one such row pair for each handset;

each handset is battery-powered; and

each active handset turns on during the epoch only during its own time slice
      and turns off otherwise.

19. Cancelled.